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isolation and primary culture of rostral and caudal zone of the chick developing neural tube

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Background and goal: The cephalic and caudal zone of developing neural tube comprises neural precursor cells differentiating into neurons.The aim of this study was primary culture of the rostral and caudal zone upon isolation from chick embryo and in vitro differentiation into neuron.
Materials & Methods : The rostral and caudal-most part of the developing neural tube were isolated from chick embryo satged ٩-١٠ according to Hamburger-Hamilton developmental table and cultured in ٢٤-well dishes containing DMEM/F١٢+Glutamax medium +١٥٪ FBS which supplemnted by ١٪ Pen/Strep, ١٪NEAA, ١ mM ٢-mercaptoethanol.
Results: Neural – like cells started to project from cultured caudal zone after ٤ days plating and produced a neural network around it up to ١١ days post-plating. Interestingly, the neural rosette-like structure has been found to form in cultured telencephalon after ١٥ days which differentiated into neural tube-like structure showing a prominent lumen surrounded by neuroepuithelium upon ٢٥ post-plating.
Conclusion: The developing neural tube can differentiate into neural cells and rosette –like structures upon isolation from chick embryo and makes an in vitro model system for further investigation on neurvous system.

Rostral and caudal zone,Developing neural tube,Chick embryo,Neural rosette